REMARKS

The Examiner provides twelve (12) cited references (in various combinations) to support the present claim rejections. The Applicants summarize these rejections as follows:

I. Independent/Dependent Claim Rejections Under 35 USC § 103(a)

- A. Claims 1, 13, 15-22, and 35-39: Benning, *Annu Rev Plant Physiol Plant Mol* 49:53075 (1998); Essigmann *et al.*, *Arch Biochem Biophys* 369:30-41 (1999); in view of McNally *et al., PNAS USA,* 85:7270-7273 (1988).
- B. Claims 1, 13, 15-16, 26-31, and 40: Benning, Essigmann *et al.*, McNally *et al.*, in view of Bevan *et al.*, "Arabadopsis thaliana DNA chromosome 5: Accession ATF7J8" (posted July 26, 2000).
- C. Claims 1, 13, 15-22, and 35-39: Benning, Essigmann *et al.*, in view of Toth *et al.*, *United States Patent No. 4,774,180* (Filed: 1986).
- D. Claims 1, 13, 15-16, 26-31, and 40: Benning, Essigmann *et al.,* Toth *et al.,* in view of Bevan *et al.*

II. Dependent Claim Rejections Under 35 USC § 103(a)

- A. Claims 23-25: Benning, Essigmann *et al.*, in view of McNally *et al.*, further in view of Bidney *et al., United States Patent No. 6,265,638* (Filed: 1998).
- B. Claims 32-34: Benning, Essigmann *et al.,* McNally *et al.,* Bevan *et al.,* further in view of Bidney *et al.*
- C. Claims 23-25: Benning, Essigmann *et al.,* in view of Toth *et al.,* further in view of Comai *et al. United States Patent No. 5106739* (Filed: 1990).

III. Examiner-Cited Teaching References To Establish Skill In the Art

- A. Guler *et al. J. Bacteriol* 182(2):543-545 (January 2000).
- B. Dong *et al. Arch Biochem Biophys* 327:254-259 (1996).
- C. Kovach *et al. Gene* 166:175-176 (1995).
- D. Yue *et al., Nucleic Acids Research* 28:e14 (2000).
- E. Bishop *et al. United States Patent No. 5,876,962* (Filed: 1995).

The Applicants are disappointed to receive yet another Office Action containing an extraordinarily large number of references (*i.e.*, now totalling twelve) on which the Examiner supports the present obviousness rejections. As pointed out in the previous Office Action

response, the Federal Circuit considers the citation of numerous references as an indication of non-obviousness.

In the interest of brevity, all Applicants' arguments regarding the currently pending claims presented to the Examiner in all previous office actions (in particular, the most recent response) are incorporated by reference within the present response. Consequently, the Applicants disagree with all the Examiner's rejections for the reasons already on the record. However, Applicant also makes the following new arguments.

I. Benning & Essigmann *et al.* Do Not Disclose Nucleic Acids

Every rejection provided by the Examiner requires the combination of Benning and Essigmann *et al.* in view of either McNally *et al.* or Toth *et al.* The Examiner has ignored the claim elements and attempts to reject the Applicant's claimed embodiment soley on the basis of protein sequences in the cited art. Claims 1, 13, 15, 16, and 17 each recite specific *nucleic acid* sequences that cannot be found in either Benning or Essigmann *et al.* Specifically, these nucleic acid sequences comprise SEQ ID NO:1, SEQ ID NO:3, and SEQ ID NO: 6. The Examiner is not free to ignore these sequences. For example, Claims 15 & 16 require the active step of "transfecting said host cell with said nucleic acid". Claim 17 requires "transfecting said host cell with first and second vectors". Neither Benning nor Essigmann *et al.* disclose the claimed nucleic acid sequences, let alone vectors containing them. Without these starting materials, the references:

i) do not teach the requisite elements of the claim, and ii) do not enable one skilled in the art. Importantly, because of the degeneracy in the code, it is not possible to arrive at the nucleic acid sequence simply by looking at the amino acid sequence. This has been established in the case law. (See generally, *In re Duel* 51 F.3d 1552 (Fed. Cir. 1995); and *In re Bell*, 26 USPQ2d 1529, 1532 (Fed. Cir. 1993)).

B. McNally *et al.* Teaches Only Myosin Molecules

The Examiner provides McNally *et al.* only "... to demonstrate expression of two genes in one host cell". *Office Action, pg 3.* McNally *et al.* teaches only the expression of light and heavy chain myosin molecules and does not teach Applicant's SEQ ID NOs: 1, 3, or 6.

C. Toth *et al.* Is Non-Analogous Art

The Examiner provides Toth *et al.* for teaching that:

> ... the primary advantage of polyproteins is that a single polyprotein with multiple activities is produced. Another advantage is that the method affords the opportunity to build polyproteins which facilitate "channeling", or the direct passage of the product of one protein ... without passage of the intermediate compound into the solution.

Office Action, pg. 7-8. Again, the Examiner has not explained how the Applicant's presently claimed invention is in the same field as the generation of a polyprotein[1]. Likewise, Toth *et al.* provides no teaching that one having ordinary skill in the art could, or should, use a polyprotein to produce SQDG. Further, Toth *et al.* teaches to be the first functional polyprotein:

> Heretofore, no one has joined active proteins in such a manner that they not only retain their original activity but can be used to perform sequential reactions.

Toth et al. col 1 ln 63-65. Clearly, Toth *et al.* does not supply the SEQ ID Nos: 1, 3, and 6 that are lacking in Benning and Essigmann *et al.*

C. Bidney *et al.* And Comai *et al.* Are Of No Value

Bidney *et al.* and Comai *et al.* do not contain SEQ ID NOs: 1, 3, and 6 and do not provide these elements missing in Benning, Essigmann *et al.* and McNalley *et al.*, and Toth *et al.*. Consequently, these additional references do not provide any further support to the Examienr's obviousness rejections.

D. Guler *et al.* Is Not A Proper Teaching Reference

The Examiner uses Guler *et al.* in an attempt to establish that SEQ ID NO:1 was known in the art:

> Guler et al. was cited as evidence that the sqdX from Synechococcus sp. PCC7942 is 100% identical to SEQ ID NO:1. Guler et al. cites GenBank accession no. AF155063 ... and it validates that the sqdX gene is 100% identical to SEQ ID NO:1.

Office Action, pg. 3. Guler et al., however, does not teach the Applicants SEQ ID NO: 3 or SEQ ID NO:6. Consequently, the deficiencies of Benning and Essigmann *et al.* are not remedied.

E. Bevan *et al.* Is Not A Proper Teaching Reference

Like Guler *et al.*, Bevan *et al.* does not supply either SEQ ID NO:3 or SEQ ID NO:6. Consequently, Bevan et al. when combined with all the above cited art, does not teach all the Applicant's claim elements.

---

[1] Defined as "... proteins made up of individual proteins that have been joined together in a sequence whereby they retain their original biological activities and ability to interact with each other to perform multi-step reactions, in the proper sequential order. *Toth et al. col 2 ln 61-65.* The claims are <u>not</u> directed to joining proteins together.

CONCLUSION

The Applicants believe that the arguments and claim amendments set forth above traverse the Examiner's rejections and, therefore, request that all grounds for rejection be withdrawn for the reasons set above. Even if all the references cited by the Examiner are combined (albiet improperly), the collective teachings still lack all the elements present in the Applicant's presently claimed embodiments. Should the Examiner believe that a telephone interview would aid in the prosecution of this application, the Applicants encourage the Examiner to call the undersigned collect at 617.984.0616.

Dated: March 21, 2005

Peter G. Carroll
Registration No. 32,837

MEDLEN & CARROLL, LLP
101 Howard Street, Suite 350
San Francisco, California 94105
617.984.0616